

ABSTRACT OF THE DISCLOSURE

An illumination optical system for illuminating a mask that arranges a predetermined pattern and an auxiliary pattern smaller than the predetermined pattern using light from a light source includes an illumination-light generating mechanism for dividing the light and for forming a quadrupole light intensity distribution around an optical axis on a predetermined surface that has substantially a Fourier conversion relationship with the mask, so as to resolve the predetermined pattern and restrain the auxiliary pattern from resolving, wherein at least one of a size of each pole of the quadrupole light intensity distribution or a distance between the optical axis and each pole of the quadrupole light intensity distribution are variable.